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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,904	07/25/2003	Martin Freitag	MUH-12624	3432

7590 03/29/2004

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EXAMINER
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AUDUONG, GENE NGHIA

ART UNIT	PAPER NUMBER
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2818

DATE MAILED: 03/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/627,904

Applicant(s)

FREITAG ET AL.

Examiner

Gene N Auduong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☒ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 08-22-03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Germany on January 25, 2001. It is noted, however, that applicant has not filed a certified copy of the Germany 101 03 313.3 application as required by 35 U.S.C. 119(b).

### ***Information Disclosure Statement***

2. This office is acknowledged the information disclosure statement (IDS) filed on August 22, 2003. The information disclosure statement is being considered by the examiner.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-6 are rejected under 35 U.S.C. 102(a) as being anticipated by Qi et al. (U.S. Pat. No. 6,512,690).

Regarding claim 1, Qi et al. disclose an MRAM configuration as in figure 4, comprising: word lines (word lines 152, 154); bit lines (bit lines 172, 174) running at distance from the word lines; first select lines; second select lines (second select lines 176, 178); and a multiplicity of memory cells (memory cells 100) disposed a memory matrix form, the memory cells containing MTJ layer sequences and selection transistors (see figure 3) having gates and drain-source path, the MTJ layer sequences in each case disposed between the word lines and the bit lines, the

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selection transistors connected to the select lines at the gates for reading from the memory cells, the MTJ layer sequences connected to the second select lines 176, 178, in a respective one of the memory cells a respective MTJ layer sequence and a respective drain-source path of a respective one of the selection transistors in each case lie parallel to one another, so that the second select lines 176, 178 being formed by the drain-source paths of the selection transistors (selection transistors 102 of memory cell 100) lying in series with one another.

Regarding claim 2, Qi et al. disclose the MRAM configuration according to claim 1, further comprising selection transistors (selection transistors in column select 170), and each of the second select lines 176, 178 of a chain of the memory cells 100 in the memory matrix lies in series with a separate one of the selection transistors (figure 4).

Regarding claim 3, Qi et al. disclose the MRAM configuration according to claim 1 wherein the gates of the selection transistors are connected to the first select lines (figure 4, gate of selection transistor 102 of memory cell 100 are connected to the first select lines 162, 164).

Regarding claim 4, Qi et al. disclose the MRAM configuration according to claim 1, wherein the memory cells 100 have a minimum dimension being  $4F^2$  where F denotes a minimum feature size of a technology used (col. 4, lines 59+).

Regarding claim 5, Qi et al. disclose the MRAM configuration according to claim 1, wherein the first select lines 162, 164 are routed above the gates of the selection transistors (figures 3 and 4).

Regarding claim 6, Qi et al. disclose the MRAM configuration according to claim 4 wherein the first select lines 162, 164 and the bit lines 172, 174 run parallel to one another (figure 4).

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*Conclusion*

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gene N Auduong whose telephone number is (571) 272-1773.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GA  
March 16, 2004



Gene N Auduong  
Primary Examiner  
Art Unit 2818